CW#61: Simplify Cube Roots

Geometry

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| --- | --- |
| **CRS** | NCP 507 – Work with cubes and cube roots of numbers |
| **Objectives** | 5.9 Simplify cube roots |

***\*\*Teacher Notes: Students have a classroom copy only. They have all the problems in front of them. Anything in italics on this page is NOTES that you should write out for students to copy in their notebooks.\*\****

**Mixed Review (10 minutes)**

|  |  |
| --- | --- |
| 1) Solve: (6) | 2) Solve: (4) |
| 3) | 4) |

**Reflect (5 minutes)**

In your graph paper notebooks, write a paragraph that explains 1) What a radical/square root is, and 2) Everything we have worked on when it comes to radicals/square roots. Finally, create 2 example problems and solve them!

**Cube Roots:***To evaluate a cube root, determine what number you would multiply by itself three times to get the radicand!*

|  |  |  |  |
| --- | --- | --- | --- |
| *1)*  *Therefore, = \_\_\_\_* | *2)*  *Therefore, = \_\_\_\_* | *3)*  *Therefore, = \_\_\_\_* | *4)*  *Therefore, = \_\_\_\_* |

*When you don’t have a perfect cube root, factor the radicand into one!* *First 5 perfect cubes: 8, 27, 64, 125, 216.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Example 1)** Simplify: | 5) Simplify: | 6)Simplify: | 7)Simplify: |
| **Example 2)** What is ? | | 8) Simplify: | 9) Simplify: |

***VARIABLES with cube roots*:** *Every multiple of 3 will go to the outside of the radical, and anything that is NOT a multiple of 3 will stay inside the radical.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | | | | |
| ***Example 1****:* = | ***Example 2:***= | | | | ***Example 3****:* |
| 4) | 5) Simplify: | | | | 6) Simplify: |
| 7) When y = -2, what is the value of ?  A. -8  B. -2  C. 0  D. 2  E. 8 | 8) Simplify: | | | | 9) |
| 10) Which of the following statements best describes the cubed root of a number *x*, or ?   1. A number that is equal to *x* when it is multiplied by 3 2. A number that is equal to *x* when it is divided by 3 3. A number that is equal to *x* when it is cubed 4. A number that is equal to *x* when it is squared | | | 11) The value of MUST be negative if:   * 1. *x* and *y* are negative   2. *x* and *y* are positive   3. only *x* is negative   4. only *y* is negative  1. I only 2. II only 3. III and IV only 4. II and IV only | | |
| ***Example 4:*** | 12) Simplify completely:  a)  b) 3  c)  d)  e) | | | | 13) Simplify: |
| 14) Put in simplest terms: | | 15) Identify and correct the error in simplifying the following cube root: | | | |
| *Example 5:* When x = -4, what is the value of ? | 16) When y = -2, what is the value of: | | | | 17) When z = 4, what is the value of: |
| *Example 6:* What is the simplest form of the radical ? (Assume that x and y are nonnegative) | 18) What is the simplest form of the radical ? (Assume that x and y are nonnegative) | | | | 19) What is the simplest form of the radical ? (Assume that x and y are nonnegative) |
| 20) What is the simplest form of the radical ? | | | | 21) What is the simplest form of the radical | |

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| 1) Solve: | 2) Solve: |
| 3) | 4) |

**Reflect (5 minutes)**

In your graph paper notebooks, write a paragraph that explains 1) What a radical/square root is, and 2) Everything we have worked on when it comes to radicals/square roots. Finally, create 2 example problems and solve them!

**Cube Roots:**

|  |  |  |  |
| --- | --- | --- | --- |
| *1)*  *Therefore, = \_\_\_\_* | *2)*  *Therefore, = \_\_\_\_* | *3)*  *Therefore, = \_\_\_\_* | *4)*  *Therefore, = \_\_\_\_* |
| **Example 1)** Simplify: | 5) Simplify: | 6)Simplify: | 7)Simplify: |
| **Example 2)** What is ? | | 8) Simplify: | 9) Simplify: |

***VARIABLES with cube roots*:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | | | | |
| *Example 1:* = | *Example 2:* = | | | | *Example 3:* |
| 4) | 5) Simplify: | | | | 6) Simplify: |
| 7) When y = -2, what is the value of ?  A. -8 B. -2 C. 0 D. 2 E. 8 | 8) Simplify: | | | | 9)  A.  B. C.  D. |
| 10) Which of the following statements best describes the cubed root of a number *x*, or ?   1. A number that is equal to *x* when it is multiplied by 3 2. A number that is equal to *x* when it is divided by 3 3. A number that is equal to *x* when it is cubed 4. A number that is equal to *x* when it is squared | | | | 11) The value of MUST be negative if:   1. *x* and *y* are negative 2. *x* and *y* are positive 3. only *x* is negative   **IV.** only *y* is negative   1. I only 2. II only 3. III and IV only 4. II and IV only | |
| ***Example 4:*** | 12) Simplify completely:  a) b) 3  c) d) e) | | | | 13) Simplify: |
| 14) Put in simplest terms: | | 15) Identify and correct the error in simplifying the following cube root: | | | |
| *Example 5:* When x = -4, what is the value of ? | 16) When y = -2, what is the value of: | | | | 17) When z = 4, what is the value of: |
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